CASE REPORT

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Breast cancer metastasis presenting as ethmoiditis*

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SUMMARY

Metastasis from primary tumours to the paranasal sinuses is infrequent. We report an unusual case of breast cancer metastasis presenting as ethmoiditis in MRI. MRI changes are unspecific and sometimes inflammatory lesions can not be distinguished from neoplastic lesions. Inflammatory changes in the paranasal sinuses are also frequently noted on MRI even in normal persons without disease. A high index of metastasis suspicion in any patient with breast cancer must be kept in mind.

Key words: breast cancer, metastasis, ethmoiditis

INTRODUCTION

Metastasis from primary tumours to the paranasal sinuses is infrequent. Only a few cases of paranasal breast cancer metastasis have previously been published (Nelson et al., 1990; Austin et al., 1995). The mechanism of metastasis to the paranasal sinuses is unclear. The hematogenous spread through the vertebral venous plexus has been speculated (Batson, 1988). The Valsalva maneuver may cause a retrograde flow through a valveless low-pressure system, which communicates with the venous system of the thorax, and carries tumour emboli to the pterygoid plexus and paranasal sinuses (Batson, 1988; Nelson et al., 1990). Of note, it is not known if paranasal sinus metastasis ever occurs as the only metastasis of breast cancer. We describe one patient with breast cancer metastasis presenting as ethmoiditis.

CASE REPORT

A 44 years-old woman was admitted to the department of Otorhinolaryngology from the department of Radiotherapy, University of Helsinki, because of mild soft tissue edema around her left eye and findings suggesting ethmoidal sinusitis changes in the paranasal MRI in December 1999. No signs of acute or prolonged rhinitis were apparent. Her medical history included no previous sinusitis or chronic sinusitis. Seven years earlier the patient had undergone left mastectomy, axillary node dissection and had received adjuvant radiation and cytostatic therapy because of receptor positive intraductal adenocarcinoma. Despite the treatments, cancer had disseminated into the bones and brain. The metastatic condition was treated by adjuvant tamoxifen therapy.

On admission, a slight soft tissue edema was observed around the left eye. Her ear-, nose- and throat status was normal with no signs of upper respiratory tract infection. MRI showed changes suggesting ethmoidal sinusitis especially on the left side (Figure 1). Mucosal changes suggesting polypous thickening of the mucosa was also seen in the maxillary sinuses and sphenoids (Figure 1). Ethmoidectomy and sphenotomy was made on the left side. Only mucosal thickening in the ethmoidal area and mucus in the sphenoidal sinus was seen. Biopsy specimens from the ethmoidal sinus, but not from the sphenoidal sinus, proved to be metastatic intraductal breast adenocarcinoma.

DISCUSSION

Our patient had soft tissue swelling around the left eye and mucosal thickening in her paranasal sinuses which was thought to represent ethmoiditis with possible orbital irritation on the left side and thus at risk for inflammatory orbital complications. MRI abnormalities in the paranasal sinuses are often seen even in normal persons. According to the literature, the percentage of patients with incidental radiological abnormal paranasal sinuses may raise over 50% in adults (Jones et al., 1997). During the winter-time and especially if the subject has symptoms of common colds morphological mucosal changes in the paranasal sinuses are regularly noted both in CT and MRI (Rak et al., 1991; Gwaltney et al., 1994; Puhakka et al., 1998; Tarp et al., 2000). However, MRI is unspecific and diagnosis and treatment of possible sinusitis needs further coexisting signs, symptoms and findings. Sometimes inflammatory lesions can not be dis-

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tinguished from neoplastic lesions. In most instances Gadolinium-diethylenetriamine pentaacetic acid (Gd-DTPA) enhancement of the paranasal sinus tumour or metastasis is less intense than enhancement of the inflammatory mucosa (Chow et al., 1993). On T2-weighted scans the signal intensity of metastasis is usually hypointense compared to inflammatory lesions (Chow et al., 1993). In our case, the left ethmoid region was T2 hyperintense and enhanced significantly with Gd-DTPA which is suggestive of an inflammatory mucosal tissue. Inflammatory etiology was further supported by the soft tissue eyelid-edema, which is not usual in an uncomplicated adult ethmoiditis and raises suspicion of possible orbital complication and indicates surgical drainage. Patients with breast cancer represent a small percentage of patients with ethmoidal metastasis. Sinusitis changes are common findings which may often be seen incidental in patients. However, a high index of metastasis suspicion in any patient with breast cancer must be kept in mind.

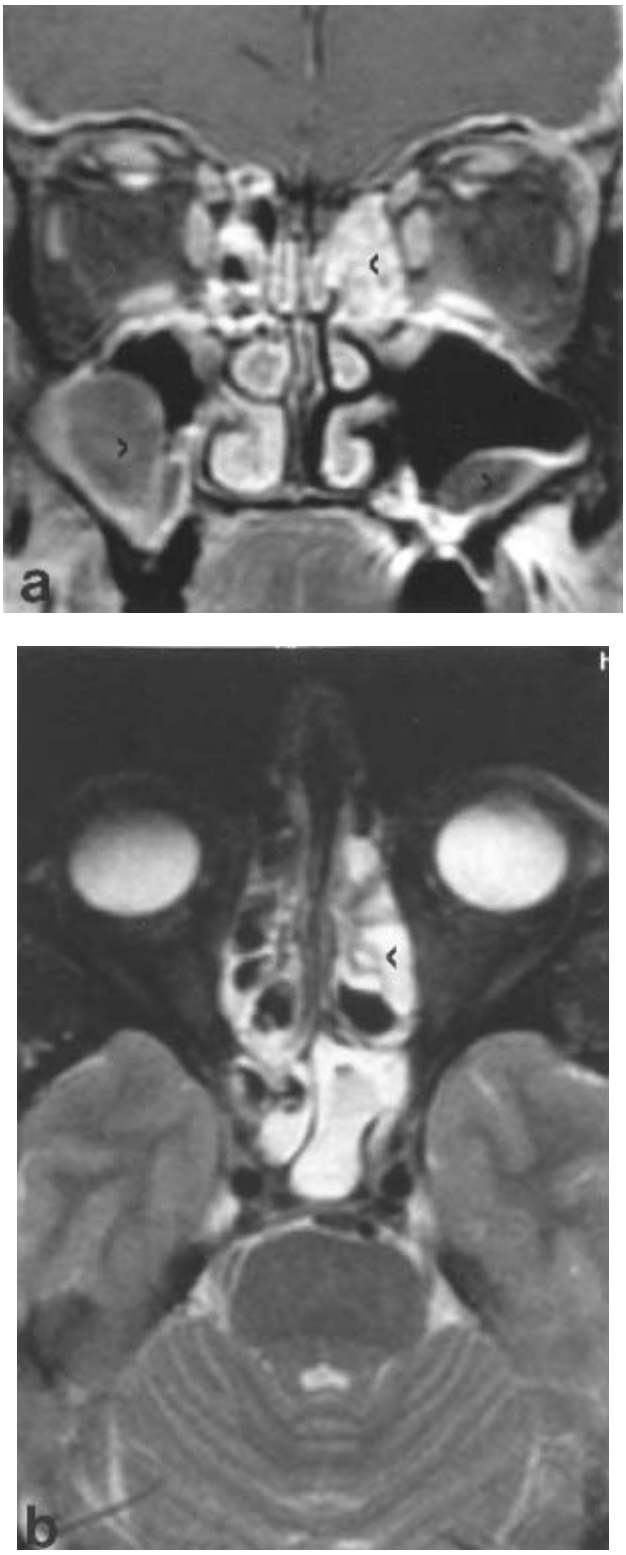

Figure 1. T1-weighted coronal MR scan (a) after administration of Gd-DTPA shows highly enhanced lesion in the left ethmoid air cells (arrow). On the T2-weighted axial scan (b) the lesion is relatively hyperintense (arrow) which together with enhancement pattern is suggestive of inflammatory mucosal tissue. The T1-weighted scan (a) also demonstrates two hypointense cystic lesions in both maxillary sinuses (arrows).

REFERENCES

1. Austin JR, Kershiznek MM, McGill D, Austin SG (1995) Breast carcinoma metastatic to paranasal sinuses. Head Neck 17: 161-165.
2. Batson OV (1988) The function of the vertebral veins and their role in the spread of metastasis. Ann Surg. 112: 138-149.
3. Chow JM, Leonett JP, Mafee MF (1993) Epithelial tumours of the paranasal sinuses and nasal cavity. Radiol Clin North Am 31: 61-73.
4. Gwaltney JM, Jr, Phillips CG, Miller RD, Riker DK (1994) Computed tomographic study of the common cold. New Eng J Med 1330: 25-30.
5. Jones PL, Crowe P, Chavda SV, Pahor AL (1997) The incidence of sinusitis in patients with multiple sclerosis. Rhinology 35: 118-119.
6. Nelson E, Goldman E, Hemmati M (1990) Metastatic carcinoma of the ethmoid sinus. Otolaryngol Head Neck Surg 103: 120-123.
7. Puhakka T, Mäkelä M, Alanen A, Kallio T, Korsoff L, Arstila P, Leinonen M, Pulkkinen M, Suonpää J, Mertsola J, Ruuskanen O (1998) Sinusitis in the common cold. J Allergy Clin Immunol 102: 403-408.
8. Rak KM, Newell JD, Yakes WF, Damiano MA, Luethke JM (1991) Paranasal sinuses on MR images of the brain: significance of mucosal thickening. AJR Am J Roentgenol 156: 381-384.
9. Tarp B, Fiirgaard B, Christensen T, Jensen JJ, Black FT (2000) The prevalence and significance of incidental paranasl sinus abnormalities on MRI. Rhinology 38: 33-38.

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